

Renewable Energy Question #20: How has MI, and how have other jurisdictions, treated EE or optimization and renewables as related or separate? For instance, have credits generated from one or the other been interchangeable or separate? What have been the cost, reliability, and environmental impacts of different regimes?

Most states treat energy efficiency and renewable energy separately. While both energy efficiency and renewable energy are critical to the swift transition to a clean energy economy and deserve policy support, having an energy efficiency portfolio standard that is separate from the renewable electricity standard helps ensure that these energy resources complement rather than compete with one other.

A study by the National Renewable Energy Laboratory concluded that when energy efficiency is eligible for RES compliance, it is important that it be included in a separate tier or capped. In addition, there needs to be “rigorous measurement and verification protocols to ensure achievement of energy and environmental goals.”

Seven of the 29 states with a renewable electricity standard allow energy efficiency to comingle with renewable energy in meeting compliance obligations:

- In Michigan, utilities may use energy efficiency (energy optimization credits) with approval of the Public Service Commission. They may be substituted at a 1:1 ratio to RECs, but can only account for 10 percent of a utility's total obligation.
- In Pennsylvania, a variety of energy efficiency technologies are eligible to meet the Tier II requirements of the state's Alternative Energy Portfolio Standard. The standard calls for utilities to generate 8 percent of their electricity by using "Tier I" energy sources and 10 percent using "Tier II" sources by 2021.
- In North Carolina, up to 25 percent of the annual RES requirements can be met through energy efficiency technologies, including combined heat and power systems powered by non-renewable fuels. After 2021, up to 40 percent of the standard may be met through energy efficiency. The state also distinguishes between energy efficiency and energy demand reduction, which can be used to meet 100 percent of the standard. Energy demand reduction is defined as: "a measurable reduction in the electricity demand of a retail electric customer that is voluntary, under the real-time control of both the electric power supplier and the retail electric customer, and measured in real time, using two-way communications devices that communicate on the basis of standards.
- In Nevada, energy efficiency measures can be used to meet the portfolio standard, but their contribution to the total is capped at 25 percent for each year.
- In Hawaii, energy efficiency technologies can be used to meet the state's RES. However, beginning in 2015, energy efficiency technologies will no longer be eligible to fulfill Hawaii's RES; as these technologies will be part of a separate energy efficiency portfolio standard.

- In Connecticut, there is a separate tier for energy efficiency under the state's RES. It represents approximately 29 percent of the total RES requirement in 2010 and approximately 15 percent in 2020.
- In Ohio, demand side management or energy efficiency improvements count towards the state RES, but can only be used to meet half of the annual RES requirement.

In the remainder of states with renewable electricity standards, energy efficiency is either treated as a separate standard or through other policies/regulatory means.

Regarding costs, the allowance of energy efficiency to meet RES compliance tends to reduce the overall cost of compliance because energy efficiency remains the cheapest resource available -- whether compared to renewable energy, fossil fuels or nuclear. In states that allow energy efficiency to count towards compliance with an RES, utilities are taking advantage. However, this also reduces the overall amount of renewable energy developed to meet standards in those states. That is why most states cap the amount of energy efficiency that can be used to meet a renewable energy standard, typically at 25% or less. This cap limits the competition between energy efficiency and new renewable energy resources.

Studies of the effects on reliability of allowing energy efficiency to count towards meeting renewable energy standards (or not) have not been done. However, it is unlikely that either allowing energy efficiency to count or not would have an impact on reliability. Any time you add a resource to the grid -- whether in the form of new generation or reduced generation through energy efficiency -- you increase reliability. You either have more resources to meet the same demand (if adding new generation), or the same resources to meet less demand (if adding energy efficiency). Both increase the likelihood that there will be enough electricity available to meet demand at any given time. Thus, allowing energy efficiency to count towards meeting renewable energy standards likely has little, if any negative impact on reliability.

Allowing energy efficiency to count towards compliance with renewable energy standards probably has a small positive impact on the environment. While studies on this specific topic have not been conducted, energy efficiency is widely regarded as the most environmentally benign resource available. Even renewable energy, while significantly better to the environment and climate than fossil fuels or nuclear, has some cradle-to-grave impacts on the environment -- whether it is from the manufacture and distribution of renewable energy components or the land use impacts associated with the development of renewable energy facilities. However, it is important to note that (1) while our energy efficiency resources is large and relatively untapped, new generation resources will be required to meet future energy demand, and (2) that renewable energy resources are, by far, our cleanest and most environmentally benign generation resources available.

Because of this, both energy efficiency and renewable energy warrant strong policy support.

Resources:

1) Heeter, Jenni and Lori Bird. 2012. *Including Alternative Resources in State Renewable Portfolio Standards: Current Design and Implementation Experience*. National Renewable Energy Laboratory: Golden, CO. Available at: <http://www.nrel.gov/docs/fy13osti/55979.pdf>

2) Database of State Incentives for Renewables and Efficiency. Available at: <http://www.dsireusa.org/>